

Air Quality Permit

Issued To: Ocean Energy, Inc.
Havre Pipeline Company, L.L.C.
P.O. Box 2606
Clear Creek Road
Havre, Montana 59501

Permit #2772-07
Administrative Amendment (AA) Request
Received: 04/03/2003
Department Decision on AA Issued: 11/26/03
Permit Final: 12/13/03
AFS #015-0001

An air quality permit, with conditions, is hereby granted to Ocean Energy Inc., Havre Pipeline Company, L.L.C. (HPC), pursuant to Sections 75-2-204 and 211, Montana Code Annotated (MCA), as amended, and Administrative Rules of Montana (ARM), 17.8.740, *et seq.*, as amended, for the following:

Section I: Permitted Facilities

A. Plant Location

The CS 102 Natural Gas Compressor Station is located in the SE¼ of the NW¼ of Section 26, Township 27 North, Range 16 East, in Chouteau County, Montana. A list of permitted equipment can be found in Section I.A. of the Permit Analysis.

B. Current Permit Action

On April 3, 2003, the Department of Environmental Quality (Department) received a request from Bison Engineering, Inc. (Bison) on behalf of HPC for the addition of a 100-horsepower (hp) Arrow VRG 330 TA engine to provide power for an engine-driven chiller. On October 31, 2003, the Department received a letter from Bison for the determination of applicability of Subpart KKK to the facility. The current permit action adds the 100-hp Arrow engine to the permit according to the provisions of ARM 17.8.745 and Permit #2772-07 has been updated to reflect current permit language and rule references used by the Department.

Section II: Limitations and Conditions

A. Emission Limitations

1. Emissions from the 772-hp Superior compressor engine shall not exceed the following limits (ARM 17.8.749 and ARM 17.8.752):

NO _x ¹	2.98 lb/hr
CO	3.06 lb/hr
VOC	2.12 lb/hr

2. Emissions from the 738-hp Waukesha compressor engine shall be controlled with the use of Non-Selective Catalytic Reduction (NSCR) technology with an air fuel ratio (AFR) controller and shall not exceed the following limits (ARM 17.8.752):

NO _x ¹	3.25 lb/hr
CO	4.88 lb/hr
VOC	1.63 lb/hr

3. HPC shall not cause or authorize emissions to be discharged into the outdoor

¹ NO_x reported as NO₂

atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes (ARM 17.8.304).

4. HPC shall not cause or authorize emissions to be discharged into the atmosphere from haul roads, access roads, parking lots, or the general plant property without taking reasonable precautions to control emissions of airborne particulate matter (ARM 17.8.308).
5. HPC shall treat all unpaved portions of the access roads, parking lots, and general plant area with fresh water and/or chemical dust suppressant as necessary to maintain compliance with the reasonable precautions limitation in Section II.A.5. (ARM 17.8.749).

B. Testing Requirements

1. HPC shall test the 738-hp Waukesha Compressor Engine for NO_x and CO, concurrently, to demonstrate compliance with the NO_x and CO emission limits contained in Section II.A.2. Testing shall be conducted within 180 days of initial startup of the engine and shall continue on an every 4-year basis or according to another testing/monitoring schedule as may be approved by the Department (ARM 17.8.105 and ARM 17.8.749).
2. All compliance source tests shall be conducted in accordance with the Montana Source Test Protocol and Procedures Manual (ARM 17.8.106).
3. The Department may require further testing (ARM 17.8.105).

C. Operational Reporting Requirements

1. HPC shall supply the Department with annual production information for all emission points, as required, by the Department in the annual emission inventory request. The request will include, but is not limited to, all sources of emissions identified in Section I of the permit analysis.

Production information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request. Information shall be in units as required by the Department. This information may be used to calculate operating fees, based on actual emissions from the facility, and/or to verify compliance with permit limitations (ARM 17.8.505).

2. HPC shall notify the Department of any construction or improvement project conducted pursuant to ARM 17.8.745(1) that would include a change in control equipment, stack height, stack diameter, stack flow, stack gas temperature, source location, or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emissions unit.

The notice must be submitted to the Department, in writing, 10 days prior to start-up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change and must include the information requested in ARM 17.8.745(1)(d) (ARM 17.8.745).

3. All records compiled in accordance with this permit must be maintained by HPC as a permanent business record for at least 5 years following the date of the measurement, must be available at the plant site for inspection by the Department, and must be submitted to the Department upon request (ARM 17.8.749).

SECTION III: General Conditions

- A. Inspection - HPC shall allow the Department's representatives access to the source at all reasonable times for the purpose of making inspections or surveys, collecting samples, obtaining data, auditing any monitoring equipment (CEMS, CERMS) or observing any monitoring or testing, and otherwise conducting all necessary functions related to this permit.
- B. Waiver - The permit and all the terms, conditions, and matters stated herein shall be deemed accepted if HPC fails to appeal as indicated below.
- C. Compliance with Statutes and Regulations - Nothing in this permit shall be construed as relieving HPC of the responsibility for complying with any applicable federal or Montana statute, rule or standard, except as specifically provided in ARM 17.8.740, *et seq.* (ARM 17.8.756).
- D. Enforcement - Violations of limitations, conditions and requirements contained herein may constitute grounds for permit revocation, penalties or other enforcement as specified in Section 75-2-401, *et seq.*, MCA.
- E. Appeals - Any person or persons jointly or severally adversely affected by the Department's decision may request, within 15 days after the Department renders its decision, upon affidavit setting forth the grounds therefore, a hearing before the Board of Environmental Review (Board). A hearing shall be held under the provisions of the Montana Administrative Procedures Act. The Department's decision on the application is not final unless 15 days have elapsed and there is no request for a hearing under this section. The filing of a request for a hearing postpones the effective date of the Department's decision until the conclusion of the hearing and issuance of a final decision by the Board.
- F. Permit Inspection - As required by ARM 17.8.755, Inspection of Permit, a copy of the air quality permit shall be made available for inspection by Department personnel at the location of the permitted source.
- G. Permit Fees - Pursuant to Section 75-2-220, MCA, as amended by the 1991 Legislature, failure to pay the annual operation fee by HPC may be grounds for revocation of this permit, as required by that section and rules adopted thereunder by the Board.

Permit Analysis
Ocean Energy, Inc.
Havre Pipeline Company, L.L.C.
Permit #2772-07

I. Introduction/Process Description

A. Permitted Equipment

Ocean Energy, Inc., Havre Pipeline Company, L.L.C. (HPC) owns and operates the following equipment:

- (1) 738-horsepower (hp) Waukesha Compressor Engine
- (1) 772-hp Superior Compressor Engine
- (1) 0.5 MMBtu/hr ALCO TEG Dehydrator
- (1) 120-MBtu/hr Heater
- (1) 75-MBtu/hr Heater
- (1) 300-hp Ajax DPC Compressor Engine
- (1) 100-hp Arrow 330 TA Engine for engine-driven chiller

B. Source Description

HPC, CS 102 Natural Gas Compressor Station is located in the SE¼ of the NW¼ of Section 26, Township 27 North, Range 16 East, in Chouteau County, Montana. The CS 102 Compressor Station compresses pipeline gas for transport to major market areas. This facility also removes the moisture from the gas during the process. This is accomplished with the dehydrator, also called a reboiler or glycol unit.

C. Permit History

Montana Power Company (MPC) was issued Permit **#2772-00** for the operation of a compressor station and associated equipment at the Big Sandy Field, Station 102-1.

On March 1, 1994, the Department of Environmental Quality (Department) issued Permit **#2772-01**. This modification was requested by MPC to revise the emission limitation units. The revision was due to varying parameters, such as engine RPM, operating load (bhp), ambient air temperature, gas temperature, site, elevation, fuel gas quality, air/fuel ratio (AFR), field gas conditions, etc. Rather than expressing the limit for engines in a grams per brake horsepower-hour (g/bhp-hr), an emission limit expressed in pound per hour (lb/hr) was requested for operational flexibility. Also, to clarify NO_x mass emission calculations, NO_x emission limitations were identified as NO₂.

Permit **#2772-02** was issued on November 1, 1997. The reason for the modification was the transfer of the ownership of the Big Sandy Field Station 102-1 from MPC to UMC Petroleum Corporation. Also, an Ajax DPC 300-hp compressor engine was added. With this change, the facility requested an operational limit to keep the emissions below the Title V operating permit threshold. The addition of the engine was covered under the Administrative Rules of Montana (ARM) 17.8.705(1)(r) because the potential emissions of the new equipment were below 15 tons per year, the de minimis threshold. The rule references were also updated. Permit #2772-02 replaced Permit #2772-01.

On June 3, 1999, the Department received notification that UMC Petroleum Corp had merged with Ocean Energy, Inc. The HPC, Big Sandy Field Station 102 compressor station began operating as a subsidiary of Ocean Energy, Inc. Subsequently, on June 11, 1999, the Department issued Permit **#2772-03**, which replaced Permit #2772-02.

On October 15, 1999, HPC requested a de minimis determination for the installation of a 772-hp Superior 6GTLE compressor engine and an ALCO Dehydrator at the Big Sandy Field Compressor Station 102. HPC planned to remove the existing 600-hp White Superior compressor engine and the Sivalls Dehydrator after installation of the new equipment. Permit **#2772-04** replaced Permit #2772-03.

On July 29, 2000, HPC requested an alteration of Permit #2772-04. The alteration added a 1607-hp Waukesha Compressor Engine and a 607-hp Waukesha Compressor Engine. The alteration also removed a 600-hp White Superior Compressor Engine and a 300-MBtu/hr Sivalls Reboiler from the permit. In addition, the emission inventory for the 300-hp Ajax Compressor Engine was corrected and the operational limitations introduced in Permit #2772-02 were removed because the hours of operation limitation was no longer needed to keep the facility below the Title V threshold. Permit **#2772-05** replaced Permit #2772-04.

On July 10, 2001, HPC requested an alteration of Permit #2772-05 for the addition of a 738-hp Waukesha Compressor Engine. Further, HPC requested that the 1607-hp and the 607-hp Waukesha Compressor Engines be removed from the permit. Permit **#2772-06** replaced Permit #2772-05.

D. Current Permit Action

On April 3, 2003, the Department of Environmental Quality (Department) received a request from Bison Engineering, Inc. (Bison) on behalf of HPC for the addition of a 100-horsepower (hp) Arrow VRG 330 TA engine to provide power for an engine-driven chiller. On October 31, 2003, the Department received a letter from Bison for the determination of applicability of Subpart KKK to the facility. The current permit action adds the 100-hp Arrow engine to the permit according to the provisions of ARM 17.8.745 and permit 2772-07 has been updated to reflect current permit language and rule references used by the Department. Permit **#2772-07** replaces Permit #2772-06.

E. Additional Information

Additional information, such as applicable rules and regulations, Best Available Control Technology (BACT)/Reasonably Available Control Technology (RACT) determinations, air quality impacts, and environmental assessments, is included in the analysis associated with each change to the permit.

II. Applicable Rules and Regulations

The following are partial explanations of some applicable rules and regulations that apply to the facility. The complete rules are stated in the ARM and are available, upon request, from the Department. Upon request, the Department will provide references for locations of complete copies of all applicable rules and regulations or copies where appropriate.

A. ARM 17.8, Subchapter 1 - General Provisions, including, but not limited to:

1. ARM 17.8.101 Definitions. This rule includes a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.

2. ARM 17.8.105 Testing Requirements. Any person or persons responsible for the emissions of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment, including instruments and sensing devices, and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.
3. ARM 17.8.106 Source Testing Protocol. The requirements of this rule apply to any emission source testing conducted by the Department, any source, or other entity as required by any rule in this chapter, or any permit or order issued pursuant to this chapter, or the provisions of the Clean Air Act of Montana, 75-2-101, *et seq.*, Montana Code Annotated (MCA).

HPC shall comply with the requirements contained in the Montana Source Test Protocol and Procedures Manual, including but not limited to, using the proper test methods and supplying the required reports. A copy of the Montana Source Test Protocol and Procedures Manual is available from the Department upon request.
4. ARM 17.8.110 Malfunctions. (2) The Department must be notified promptly by telephone whenever a malfunction occurs that can be expected to create emissions in excess of any applicable emission limitation, or to continue for a period greater than 4 hours.
5. ARM 17.8.111 Circumvention. (1) No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes an emission of air contaminant that would otherwise violate an air pollution control regulation. (2) No equipment that may produce emissions shall be operated or maintained in such a manner that a public nuisance is created.

B. ARM 17.8, Subchapter 2 - Ambient Air Quality, including, but not limited to:

1. ARM 17.8.204 Ambient Air Monitoring
2. ARM 17.8.210 Ambient Air Quality Standards for Sulfur Dioxide
3. ARM 17.8.211 Ambient Air Quality Standards for Nitrogen Dioxide
4. ARM 17.8.212 Ambient Air Quality Standards for Carbon Monoxide
5. ARM 17.8.213 Ambient Air Quality Standard for Ozone
6. ARM 17.8.214 Ambient Air Quality Standard for Hydrogen Sulfide
7. ARM 17.8.220 Ambient Air Quality Standard for Settled Particulate Matter
8. ARM 17.8.221 Ambient Air Quality Standard for Visibility
9. ARM 17.8.222 Ambient Air Quality Standard for Lead
10. ARM 17.8.223 Ambient Air Quality Standard for PM₁₀

HPC must maintain compliance with the applicable ambient air quality standards.

C. ARM 17.8, Subchapter 3 - Emission Standards, including, but not limited to:

1. ARM 17.8.304 Visible Air Contaminants. This rule requires that no person may cause or authorize emissions to be discharged to an outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.
2. ARM 17.8.308 Particulate Matter, Airborne. (1) This rule requires an opacity

limitation of less than 20% for all fugitive emission sources and that reasonable precautions be taken to control emissions of airborne particulate matter. (2) Under this rule, HPC shall not cause or authorize the use of any street, road, or parking lot without taking reasonable precautions to control emissions of airborne particulate matter.

3. ARM 17.8.309 Particulate Matter, Fuel Burning Equipment. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere, particulate matter caused by the combustion of fuel in excess of the amount determined by this section.
4. ARM 17.8.310 Particulate Matter, Industrial Process. This rule requires that no person shall cause, allow, or permit to be discharged into the atmosphere particulate matter in excess of the amount set forth in this section.
5. ARM 17.8.322 Sulfur Oxide Emissions--Sulfur in Fuel. Commencing July 1, 1971, no person shall burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions. HPC will consume pipeline quality natural gas, in the engines, the dehydration unit, and the space heaters to meet this limitation.
6. ARM 17.8.324 Hydrocarbon Emissions--Petroleum Products. (3) No person shall load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such a tank is equipped with a vapor loss control device as described in (1) of this rule, or is a pressure tank as described in (1) of this rule.
7. ARM 17.8.340 Standard of Performance for New Stationary Sources. This rule incorporates, by reference, 40 Code of Federal Regulations (CFR) Part 60, Standards of Performance for New Stationary Sources (NSPS). The applicable NSPS Subparts include, but are not limited to:
 - a. Subpart A - General Provisions apply to all equipment or facilities subject to an NSPS Subpart as listed below.
 - b. Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry. HPC is an NSPS affected source because the engine-driven compressor is not in wet gas service and handles the gas after the extraction of heavy liquid constituents.
 - c. Subpart KKK - Standards of Performance for Onshore Natural Gas Processing: Sulfur Dioxide (SO₂) Emissions. HPC is an NSPS affected source because it does meet the definition of a natural gas processing plant defined in 40 CFR 60, Subpart KKK.
8. ARM 17.8.342 Emission Standards for Hazardous Air Pollutants for Source Categories. The source, as defined and applied in 40 CFR 63, shall comply with the requirements of 40 CFR 63, as listed below:

40 CFR 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities. Owners or operators

of oil and natural gas production facilities, as defined and applied in 40 CFR Part 63, shall comply with the applicable provisions of 40 CFR Part 63, Subpart HH. In order for a natural gas production facility to be subject to 40 CFR Part 63, Subpart HH requirements, certain criteria must be met. First, the facility must be a major source of Hazardous Air Pollutants (HAPs) as determined according to paragraphs (a)(1)(i) through (a)(1)(iii) of 40 CFR 63, Subpart HH. Second, a facility that is determined to be major for HAPs must also either process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer, or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user. Third, the facility must also contain an affected source as specified in paragraphs (b)(1) through (b)(4) of 40 CFR Part 63, Subpart HH. Finally, if the first three criteria are met, and the exemptions contained in paragraphs (e)(1) and (e)(2) of 40 CFR Part 63, Subpart HH do not apply, the facility is subject to the applicable provisions of 40 CFR Part 63, Subpart HH. Because the facility is not a major source of HAPs, HPC is not subject to the provisions of 40 CFR Part 63, Subpart HH.

40 CFR 63, Subpart HHH National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities. Owners or operators of natural gas transmission or storage facilities, as defined and applied in 40 CFR Part 63, shall comply with the standards and provisions of 40 CFR Part 63, Subpart HHH. In order for a natural gas transmission and storage facility to be subject to 40 CFR Part 63, Subpart HHH requirements, certain criteria must be met. First, the facility must transport or store natural gas prior to the gas entering the pipeline to a local distribution company or to a final end user if there is no local distribution company. In addition, the facility must be a major source of HAPs as determined using the maximum natural gas throughput as calculated in either paragraphs (a)(1) and (a)(2) or paragraphs (a)(2) and (a)(3) of 40 CFR Part 63, Subpart HHH. Second, a facility must contain an affected source (glycol dehydration unit) as defined in paragraph (b) of 40 CFR Part 63, Subpart HHH. Finally, if the first two criteria are met, and the exemptions contained in paragraph (f) of 40 CFR Part 63, Subpart HHH, do not apply, the facility is subject to the applicable provisions of 40 CFR Part 63, Subpart HHH. Because the facility is not a major source of HAPs, HPC is not subject to the provisions of 40 CFR 63, Subpart HHH.

- D. ARM 17.8, Subchapter 5 - Air Quality Permit Application, Operation and Open Burning Fees, including, but not limited to:
1. ARM 17.8.504 Air Quality Permit Application Fees. This rule requires that an applicant submit an air quality permit application fee concurrent with the submittal of an air quality permit application. A permit application is incomplete until the proper application fee is paid to the Department. The current permit adds a 100-hp Arrow engine to the permit according to the provisions of ARM 17.8.745. Therefore, the current permit action is considered an administrative action and HPC was not required to submit a permit application fee.
 2. ARM 17.8.505 Air Quality Operation Fees. An annual air quality operation fee must, as a condition of continued operation, be submitted to the Department by each source of air contaminants holding an air quality permit, excluding an open burning permit, issued by the Department; and the air quality operation fee is based on the actual or estimated actual amount of air pollutants emitted during

the previous calendar year.

An air quality operation fee is separate and distinct from an air quality permit application fee. The annual assessment and collection of the air quality operation fee, described above, shall take place on a calendar-year basis. The Department may insert into any final permit issued after the effective date of these rules, such conditions as may be necessary to require the payment of an air quality operation fee on a calendar-year basis, including provisions that pro-rate the required fee amount.

E. ARM 17.8, Subchapter 7 - Permit, Construction and Operation of Air Contaminant Sources, including, but not limited to:

1. ARM 17.8.740 Definitions. This rule is a list of applicable definitions used in this chapter, unless indicated otherwise in a specific subchapter.
2. ARM 17.8.743 Montana Air Quality Permits--When Required. This rule requires a person to obtain an air quality permit or permit alteration to construct, alter or use any air contaminant sources that have the Potential to Emit (PTE) greater than 25 tons per year of any pollutant. HPC has the PTE more than 25 tons per year of carbon monoxide (CO) and nitrogen oxides (NO_x); therefore, an air quality permit is required.
3. ARM 17.8.744 Montana Air Quality Permits--General Exclusions. This rule identifies the activities that do not require a permit under the Montana Air Quality Permit program.
4. ARM 17.8.745 When Permit Required--Exclusions. This rule identifies the de minimis changes at permitted facilities that are not subject to the Montana Air Quality Permit Program.
5. ARM 17.8.748 New or Altered Sources and Stacks--Permit Application Requirements. This rule requires that an application for an air quality permit be submitted for a new or altered source or stack. The current permit action is an administrative action that adds a 100-hp Arrow engine to the permit according to the provisions of ARM 17.8.745; therefore, HPC was not required to notify the public of the current permit action.
6. ARM 17.8.749 Conditions for Issuance of Permit. This rule requires that the permits issued by the Department must authorize the construction and operation of the facility or emitting unit subject to the conditions in the permit and the requirements of this subchapter. This rule also requires that the permit must contain any conditions necessary to assure compliance with the Federal Clean Air Act (FCAA), the Clean Air Act of Montana, and rules adopted under those acts.
7. ARM 17.8.752 Emission Control Requirements. This section requires a source to install the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. HPC was not required to submit an application for the current permit action because the change is considered administrative.
8. ARM 17.8.755 Inspection of Permit. This rule requires that air quality permits

shall be made available for inspection by the Department at the location of the source.

9. ARM 17.8.756 Compliance with Other Requirements. This rule states that nothing in the permit shall be construed as relieving HPC of the responsibility for complying with any applicable federal or Montana statute, rule, or standard, except as specifically provided in ARM 17.8.740, *et seq.*
10. ARM 17.8.762 Duration of Permit. An air quality permit shall be valid until revoked or modified, as provided in this subchapter, except that a permit issued prior to construction of a new or altered source may contain a condition providing that the permit will expire unless construction is commenced within the time specified in the permit, which in no event may be less than 1 year after the permit is issued.
11. ARM 17.8.763 Revocation of Permit. An air quality permit may be revoked upon written request of the permittee, or for violations of any requirement of the Clean Air Act of Montana, rules adopted under the Clean Air Act of Montana, the FCAA, rules adopted under the FCAA, or any applicable requirement contained in the Montana State Implementation Plan (SIP).
12. ARM 17.8.764 Administrative Amendment to Permit. An air quality permit may be amended for changes in any applicable rules and standards adopted by the Board of Environmental Review (Board) or changed conditions of operation at a source or stack that do not result in an increase of emissions as a result of those changed conditions. The owner or operator of a facility may not increase the facility's emissions beyond permit limits unless the increase meets the criteria in ARM 17.8.745 for a de minimis change not requiring a permit, or unless the owner or operator applies for and receives another permit in accordance with ARM 17.8.748, ARM 17.8.749, ARM 17.8.752, ARM 17.8.755, and ARM 17.8.756, and with all applicable requirements in ARM Title 17, Chapter 8, Subchapters 8, 9, and 10.
13. ARM 17.8.765 Transfer of Permit. This rule states that an air quality permit may be transferred from one person to another if written notice of Intent to Transfer, including the names of the transferor and the transferee, is sent to the Department.

F. ARM 17.8, Subchapter 8 - Prevention of Significant Deterioration of Air Quality, including, but not limited to:

1. ARM 17.8.801 Definitions. This rule is a list of applicable definitions used in this subchapter.
2. ARM 17.8.818 Review of Major Stationary Sources and Major Modifications--Source Applicability and Exemptions. The requirements contained in ARM 17.8.819 through ARM 17.8.827 shall apply to any major stationary source and any major modification, with respect to each pollutant subject to regulation under the Federal Clean Air Act (FCAA) that it would emit, except as this subchapter would otherwise allow.

This facility is not a major source since the facility is not a listed source and the facility's PTE is below 250 tons per year of any pollutant (excluding fugitive emissions).

G. ARM 17.8, Subchapter 12 - Operating Permit Program, including, but not limited to:

1. ARM 17.8.1201 Definitions. (23) Major Source under Section 7412 of the FCAA is defined as any stationary source having:
 - a. PTE > 100 tons/year of any pollutant;
 - b. PTE > 10 tons/year of any one HAP, PTE > 25 tons/year of a combination of all HAP's, or lesser quantity as the Department may establish by rule; or
 - c. PTE > 70 tons/year of PM₁₀ in a serious PM₁₀ nonattainment area.
2. ARM 17.8.1204 Air Quality Operating Permit Program Applicability. (1) Title V of the FCAA of 1990 requires that all sources, as defined in ARM 17.8.1204 (1), obtain a Title V Operating Permit. In reviewing and issuing Air Quality Permit #2772-07 for the HPC Big Sandy Field Station 102 Compressor Station the following conclusions were made:
 - a. The facility's PTE is less than 100 tons/year for any pollutant.
 - b. The facility's PTE is less than 10 tons/year of any one HAP and less than 25 tons/year of all HAP's.
 - c. This source is not located in a serious PM₁₀ nonattainment area.
 - d. This facility is not subject to any current NSPS.
 - e. This facility is not subject to any current NESHAP standards.
 - f. This source is not a Title IV affected source nor a solid waste combustion unit.
 - g. This source is not an EPA designated Title V source.

Based on these facts, the Department has determined that the CS 102 Compressor Station will be a minor source of emissions as defined under Title V.

III. BACT Determination

A BACT determination is required for each new or altered source. HPC shall install on the new or altered source the maximum air pollution control capability that is technically practicable and economically feasible, except that BACT shall be utilized. However, the current permit action adds the 100-hp Arrow engine to the permit according to the provisions of ARM 17.8.745 and the change is not subject to the BACT requirements.

IV. Emission Inventory

Source	Ton/year					
	PM	PM ₁₀	NO _x	CO	VOC	SO _x
772-hp Superior Compressor Engine	0.54	0.54	13.02	13.39	9.30	0.03
300-hp Ajax Compressor Engine	0.10	0.10	13.04	2.61	2.90	0.01
738-hp Waukesha Compressor Engine	0.31	0.31	14.22	21.38	7.13	0.02
Alco Dehydrator Reboiler and Still Vent	0.02	0.02	0.22	0.18	0.01	0.00
Two Natural Gas-Fired Heaters	0.00	0.00	0.09	0.02	0.00	0.00
100-hp Arrow Engine	0.03	0.03	9.74	2.90	0.97	0.00
Total	1.00	1.00	50.33	40.48	20.31	0.06

772-bhp Superior Compressor Engine

Heat Content of Natural Gas: 1,000 MMBtu/MMSCF

Fuel Consumption Rate: 15.98 MBtu/bhp-hr

Number of hours of operation per year: 8760hr/yr

Fuel Combustion Rate: 15.98 MBtu/bhp-hr * 772hp * 1MMBtu/1,000MBtu=12.34 MMBtu/hr

Fuel Usage: 12.34 MMBtu/hr * 1,000 MMBtu/MMSCF * 8760hr/yr =108.10 MMSCF/yr

PM Emissions

PM Emission Factor is equal to the PM₁₀ Emission Factor, so PM Emissions are equal to PM₁₀ Emissions.

PM₁₀ Emissions

Emission Factor: 10.0 lb/MMSCF (Fire Version 5.0, 8/95 2-02-002-02)

Control Efficiency: 0%

Calculations: E(PM₁₀) = 10.0 lb/MMSCF * 108.10 MMSCF/yr * 0.0005 ton/lb = 0.54 ton/yr.

SO_x Emissions

Emission Factor: 0.6 lb/MMSCF (Fire Version 5.0, 8/95 2-02-002-02)

Control Efficiency: 0%

Calculations: E(SO_x) = 0.6 lb/MMSCF * 108.10 MMSCF/yr * 0.0005 ton/lb = 0.03 ton/yr

VOC Emissions

Emission Factor: 1.25 g/bhp-hr (Manufacturer's data)

Control Efficiency: 0%

Calculations: E(VOC) = 1.25 g/bhp-hr * 772 bhp * 0.0022 lb/g * 0.0005 ton/lb * 8760 hr/yr = 9.30 ton/yr

NO_x Emissions

Emission Factor: 1.75 g/bhp-hr (Manufacturer's data)

Control Efficiency : 0%

Calculations: E(NO_x) = 1.75 g/bhp-hr * 772 bhp* 0.0022 lb/g * 0.0005 ton/lb* 8760 hr/yr = 13.02 ton/yr

CO Emissions

Emission Factor: 1.80 g/bhp-hr (Manufacturer's data)

Control Efficiency: 0%

Calculations: E(CO)=1.80 g/bhp-hr * 772 hp * 0.0022 lb/g * 0.0005 ton/lb * 8760 hr/yr = 13.39 ton/yr

300-hp Ajax Compressor Engine

Brake Horsepower: 300 bhp

Hours of Operation: 8760 hr/yr

Max Fuel Combustion Rate: 8.50 MBtu/hp-hr * 300 hp = 2,550 MBtu/hr = 2.25MMBtu/hr

Fuel Heating Value: 1,000 Btu/SCF=1,000 MMSCF/MMBtu

Calculated Fuel Usage [MMSCF]: (Fuel Combustion Rate [MMBtu]/Heat Content of Fuel [MMBtu/MMSCF])*Hours/Year

Calculated Fuel Usage: (2.25 MMBtu/hr/1000MMSCF/MMBtu)*8760 hr/yr = 19.71MMSCF

PM Emissions

PM Emission Factor is equal to PM₁₀ Emission Factor, so the PM Emissions are equal to PM₁₀ Emissions

PM₁₀ Emissions

Emission Factor: 10.0 lbs/MMSCF (FIRE, PC Version, 1/95, 2-02-002-02)

Calculations: E(PM₁₀) = 10.0 lb/MMSCF * 19.71 MMSCF* 0.0005 ton/lb = 0.10 ton/yr

NO_x Emissions

Emission Factor: 4.5g/bhp-hr (Data from Manufacturer)

Calculations: $E(\text{NO}_x) = 4.5 \text{ g/bhp-hr} * 300 \text{ bhp} * 1 \text{ lb/453.6 g} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 13.04 \text{ ton/yr}$

CO Emissions

Emission Factor: 0.9g/bhp-hr (Data from Manufacture)

Calculations: $E(\text{CO}) = 0.9 \text{ g/bhp-hr} * 300 \text{ bhp} * 1 \text{ lb/453.6 g} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 2.61 \text{ ton/yr}$

VOC Emissions

Emission Factor: 1.0 g/bhp-hr (Data from Manufacturer)

Calculations: $E(\text{VOC}) = 1.0 \text{ g/bhp-hr} * 300 \text{ bhp} * 1 \text{ lb/453.6 g} * 8760 \text{ hr/yr} * 0.0005 \text{ ton/lb} = 2.90 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.6 lbs/MMSCF (FIRE, PC Version, 1/95, 2-02-002-02)

Calculations: $E(\text{SO}_x) = 0.6 \text{ lb/MMSCF} * 19.71 \text{ MMSCF} * 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

738-hp Waukesha Compressor Engine

Fuel Combustion Rate: 7.005 MMBtu/hr

Heat Content of Natural Gas: 1,000MMBtu/MMSCF

Fuel Usage[MMSCF]: = Fuel Combustion Rate [MMBtu/hr]/Heat Content of Fuel [MMBtu/MMSCF]* Hour/Year

Calculated Fuel Usage: $(7.005 \text{ MMBtu/hr}/1,000 \text{ MMBtu/MMSCF}) * 8760 \text{ hr/yr} = 61.36 \text{ MMSCF/yr}$

Hours of Operations: 8760 hr/yr

Break Horsepower: 738 bhp

PM Emissions

PM Emission Factor is equal to PM₁₀ Emission Factor, so the PM Emissions are equal to the PM₁₀ Emissions

PM₁₀ Emissions

Emission Factor: 10.00 lb/MMSCF (Fire 5.0, 20-200-202, 8/95)

Calculations: $E(\text{PM}_{10}) = 10.00 \text{ lb/MMBtu} * 61.36 \text{ MMSCF/yr} * 0.0005 \text{ ton/lb} = 0.31 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 2.00 g/bhp-hr (Revised BACT guidelines Dec.13, 1993)

Calculations: $E(\text{NO}_x) = 2.00 \text{ g/bhp-hr} * 738 \text{ bhp} * 2.205\text{exp-3 lb/g} * 0.0005 \text{ ton/lb} * 8760 \text{ hr/yr} = 14.22 \text{ ton/yr}$

VOC Emissions

Emission Factor: 1.00 g/bhp-hr (Revised BACT guidelines Dec.13, 1993)

Calculations: $E(\text{VOC}) = 1.00 \text{ g/bhp-hr} * 738 \text{ bhp} * 2.205\text{exp-3 lb/g} * 0.0005 \text{ ton/lb} * 8760 \text{ hr/yr} = 7.13 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.6 lb/MMSCF (Fire 5.0, 20-200-202, 8/95)

Calculations: $E(\text{SO}_x) = 0.6 \text{ lb/MMSCF} * 61.36 \text{ MMSCF/yr} * 0.0005 \text{ ton/lb} = 0.02 \text{ ton/yr}$

CO Emissions

Emission Factor: 3.00 g/bhp-hr (Revised BACT guidelines Dec.13, 1993)

Calculations: $E(\text{CO}) = 3.00 \text{ g/bhp-hr} * 738 \text{ bhp} * 2.205\text{exp-3 lb/g} * 0.0005 \text{ ton/lb} * 8760 \text{ hr/yr} = 21.38 \text{ ton/yr}$

ALCO Dehydrator Reboiler and Stil Vent

Fuel Combustion Rate: 0.50 MMBtu/hr

Heat Content of Natural Gas: 1,000 MMBtu/MMSCF

Fuel Usage: 4.38 MMSCF/yr

Number of Hours of Operation: 8760 hr/yr

PM Emissions

PM Emission Factor is equal to PM₁₀ Emission Factor, so the PM Emissions are equal to PM₁₀ Emissions

PM₁₀ Emissions

Emission factor: 7.6 lb/MMSCF (AP 42 Sec.1.4-2, 3/98)

Control Efficiency: 0%

Calculations: $E(\text{PM}_{10}) = 7.6 \text{ lb/MMSCF} * 4.38 \text{ MMSCF/yr} * 0.0005 \text{ ton/lb} = 0.017 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 100.00 lb/MMSCF (AP 42 Sec.1.4-1, 3/98)

Control Efficiency: 0%

Calculations: $E(\text{NO}_x) = 100.00 \text{ lb/MMSCF} * 4.38 \text{ MMSCF/yr} * 0.0005 \text{ ton/lb} = 0.22 \text{ ton/yr}$

CO Emissions

Emission Factor: 84.00 lb/MMSCF (AP 42 Sec.1.4-2, 3/98)

Control Efficiency: 0%

Calculations: $E(\text{CO}) = 84.00 \text{ lb/MMSCF} \times 4.38 \text{ MMSCF/yr} \times 0.0005 \text{ ton/yr} = 0.18 \text{ ton/yr}$

VOC Emissions

Emission Factor: 5.5 lb/MMSCF (AP 42 Sec.1.4-2, 3/98)

Control Efficiency: 0%

Calculations: $E(\text{VOC}) = 5.5 \text{ lb/MMSCF} \times 4.38 \text{ MMSCF/yr} \times 0.0005 \text{ ton/yr} = 0.01 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.60 lb/MMSCF (AP 42 Sec.1.4-2, 3/98)

Control Efficiency: 0%

Calculations: $E(\text{SO}_x) = 0.60 \text{ lb/MMSCF} \times 4.38 \text{ MMSCF/yr} \times 0.0005 \text{ ton/lb} = 0.00 \text{ ton/yr}$

Natural Gas Space Heaters (2)

Two Heaters of Total Combustion Rate: 195 MBtu/hr=0.195 MMBtu/hr

Number of hour of Operation: 8760 hours per year.

Heat Content of Natural Gas: 1,000 MMBtu/MMSCF

Fuel Usage: [MMSCF] = (Fuel Combustion Rate [MMBtu/hr]/Heat Content of Fuel [MMBtu/MMSCF])* Hour /Year

Calculated Fuel Usage: $(0.195 \text{ MMBtu/hr}/1000 \text{ MMBtu/MMSCF}) \times 8760 \text{ hr/yr} = 1.71 \text{ MMSCF}$

PM Emissions

PM Emission Factor is equal to PM₁₀ Emission Factor, so the PM Emissions are equal to PM₁₀ Emissions

PM₁₀ Emissions

Emission Factor: 3.00 lb/MMSCF (Fire Version 5.0, SCC 10500106; 8/95)

Control Efficiency: 0%

Calculations: $E(\text{PM}_{10}) = 3.00 \text{ lb/MMSCF} \times 1.71 \text{ MMSCF} \times 0.0005 \text{ ton/lb} = 0.01 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.60 lb/MMSCF (Fire Version 5.0, SCC 10500106; 8/95)

Control Efficiency: 0%

Calculations: $E(\text{SO}_x) = 0.60 \text{ lb/MMSCF} \times 1.71 \text{ MMSCF} \times 0.0005 \text{ ton/lb} = 0.00 \text{ ton/yr}$

VOC Emissions

Emission Factor: 5.30 lb/MMSCF (Fire Version 5.0, SCC 10500106; 8/95)

Control Efficiency: 0%

Calculations: $E(\text{VOC}) = 5.30 \text{ lb/MMSCF} \times 1.71 \text{ MMSCF} \times 0.0005 \text{ ton/lb} = 0.00 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 100.00 lb/MMSCF (Fire Version 5.0, SCC 10500106; 8/95)

Control Efficiency: 0%

Calculations: $E(\text{NO}_x) = 100.00 \text{ lb/MMSCF} \times 1.71 \text{ MMSCF} \times 0.0005 \text{ ton/lb} = 0.09 \text{ ton/yr}$

CO Emissions:

Emission Factor: 20.00 lb/MMSCF (Fire Version 5.0, SCC 10500106; 8/95)

Control Efficiency: 0%

Calculations: $E(\text{CO}) = 20.00 \text{ lb/MMSCF} \times 1.71 \text{ MMSCF} \times 0.0005 \text{ ton/lb} = 0.02 \text{ ton/yr}$

100-hp Arrow VRG 330 TA engine-driven chiller

Fuel Combustion Rate: 0.731MMBtu/hr

Heat Content of Natural Gas: 1,000MMBtu/MMSCF

Fuel Usage[MMSCF]: = Fuel Combustion Rate [MMBtu/hr]/Heat Content of Fuel [MMBtu/MMSCF]* Hour/Year

Calculated Fuel Usage: $(0.731 \text{ MMBtu/hr}/1,000 \text{ MMBtu/MMSCF}) \times 8760 \text{ hr/yr} = 6.40 \text{ MMSCF/yr}$

Hours of Operations: 8760 hr/yr

Break Horsepower: 100 bhp

PM Emissions

PM Emission Factor is equal to PM₁₀ Emission Factor, so the PM Emissions are equal to PM₁₀ Emissions

PM₁₀ Emissions

Emission Factor: 10.00 lb/MMSCF (Fire PC Version 1/95, 2-02-002-02)

Control Efficiency: 0%

Calculations: $E(\text{PM}_{10}) = 10.00 \text{ lb/MMSCF} \times 6.40 \text{ MMSCF} \times 0.0005 \text{ ton/lb} = 0.03 \text{ ton/yr}$

SO_x Emissions

Emission Factor: 0.6 lb/MMSCF (Fire Version 5.0, 8/95 2-02-002-02)

Control Efficiency: 0%

Calculations: $E(\text{SO}_x) = 0.6 \text{ lb/MMSCF} * 6.40 \text{ MMSCF/yr} * 0.0005 \text{ ton/lb} = 0.002 \text{ ton/yr}$

VOC Emissions

Emission Factor: 1.0 g/bhp-hr (BACT guideline EF used; manufacturer's data < permit determination value)

Control Efficiency: 0%

Calculations: $E(\text{VOC}) = 1.0 \text{ g/bhp-hr} * 100 \text{ bhp} * 0.0022 \text{ lb/g} * 0.0005 \text{ ton/lb} * 8760 \text{ hr/yr} = 0.97 \text{ ton/yr}$

NO_x Emissions

Emission Factor: 10.084 g/bhp-hr (CAT G3608 SITA Engine Specifications)

Control Efficiency : 0%

Calculations: $E(\text{NO}_x) = 10.084 \text{ g/bhp-hr} * 100 \text{ bhp} * 0.0022 \text{ lb/g} * 0.0005 \text{ ton/lb} * 8760 \text{ hr/yr} = 9.74 \text{ ton/yr}$

CO Emissions

Emission Factor: 3.0 g/bhp-hr (BACT guideline EF used; manufacturer's data < permit determination value)

Control Efficiency: 0%

Calculations: $E(\text{CO}) = 3.0 \text{ g/bhp-hr} * 100 \text{ hp} * 0.0022 \text{ lb/g} * 0.0005 \text{ ton/lb} * 8760 \text{ hr/yr} = 2.90 \text{ ton/yr}$

V. Existing Air Quality

The air quality classification for the area is "Better than National Standards" or unclassifiable attainment for the National Ambient Air Quality Standards for criteria pollutants. There are no nonattainment areas in the nearby area.

VI. Taking or Damaging Implication Analysis

As required by 2-10-101 through 105, MCA, the Department conducted a private property taking and damaging assessment and determined there are no taking or damaging implications.

VII. Environmental Assessment

The current permit action adds a 100-hp Arrow engine to the permit according to the provisions of ARM 17.8.745; therefore, the current permit action does not require an Environmental Assessment

Permit Analysis Prepared By: Chris Ames

Date: November 13, 2003